<table>
<tr><td colspan="2">DEREE COLLEGE SYLLABUS FOR: CH 3330 ORGANIC CHEMISTRY LAB 0/3/2</td></tr>
<tr><td colspan="2">UK LEVEL: 5
UK CREDITS: 10

(Previously: CH 3330 ORGANIC AND BIOLOGICAL CHEMISTRY LAB)
(Updated: Fall 2024)</td></tr>
<tr><td>PREREQUISITES:</td><td>CH 2015 General Chemistry
CH 2121 Organic Chemistry
CH 3232 Organic and Medicinal Chemistry (co- or prerequisite)</td></tr>
<tr><td>CATALOG DESCRIPTION:</td><td>An introduction to methods of analysis in organic and biological chemistry, with emphasis on laboratory techniques and structure determination. Students get exposed to techniques such as distillation, vacuum filtration, liquid extraction, spectroscopy, chromatography and rotary evaporation; they also learn to apply the scientific method and design an experiment.</td></tr>
<tr><td>RATIONALE:</td><td>Organic Chemistry Laboratory is a course designed to provide an introduction to experimental organic chemistry and to enable students understand fundamental concepts of organic chemistry, essential for life sciences. It aims to demonstrate the importance of designing an experiment using organic synthesis and biophysical techniques. The course enables students to appreciate the importance and applications of these or similar techniques in pharmaceutical research and industry.</td></tr>
<tr><td>LEARNING OUTCOMES:</td><td>As a result of taking this course, the student should be able to:

1. Demonstrate an understanding of essential organic chemistry methodologies and green chemistry concepts.
2. Formulate and construct a methodology towards realizing a group project and apply that in an investigation.
3. Develop the necessary analytical skills to understand the nature of scientific inquiry.</td></tr>
<tr><td>METHOD OF TEACHING AND LEARNING:</td><td>In congruence with the teaching and learning strategy of the college, the following tools are used:
o Laboratory work (practical engagement, reporting calculations and data processing).
o Instruction and demonstration of techniques through online, virtual and physical resources.</td></tr>
<tr><td>ASSESSMENT:</td><td>Summative:
<table><tr><td>1st assessment: Laboratory Portfolio (Practical and Reporting skills assessment component)</td><td>60%</td></tr><tr><td>Final assessment: Group project (design and execution of an experiment, as a group project, that addresses a particular topic in organic or biological chemistry and submission of a research paper reporting on that experiment)</td><td>40%</td></tr></table>
Formative:
<table><tr><td>Multiple homework quizzes and worksheets</td><td>0</td></tr></table>
The 1st assessment tests Learning Outcomes 1 and 3
The final assessment tests Learning Outcomes 1, 2 and 3</td></tr>
</table>

INDICATIVE READING:	**REQUIRED READING:** N/A **RECOMMENDED READING:** Joaquín Isac-García José A. Dobado Francisco G. Calvo-Flores Henar Martínez-García, 2015. *Experimental Organic Chemistry*, 1st Edition.
INDICATIVE MATERIAL: *(e.g. audiovisual, digital material, etc.)*	**REQUIRED MATERIAL:** o Laboratory Notebook (22.5x 28.6 cm) 100page, Scientific Format. o Laboratory Coat o Scientific Calculator **RECOMMENDED MATERIAL:** o Organic Chemistry Model set
COMMUNICATION REQUIREMENTS:	Verbal and written skills using academic / professional English
SOFTWARE REQUIREMENTS:	MS Office, Blackboard CMS
WWW RESOURCES:	Royal Society of Chemistry: www.rsc.org/learn-chemistry American Chemical Society: www.acs.org Online Resources for Teaching and Learning Chemistry: www.chemcollective.org
INDICATIVE CONTENT:	Separation Techniques o Gravity Filtration, Rotary Evaporation, Reflux: Essential Oil extraction o Thin Layer and Column Chromatography: Pigment separation Synthetic Techniques o Green Chemistry, Halogen Addition o Aromatic Electrophilic Substitution of Esters o Cleizen-Schmit Reaction o Esterification o Multi-step Synthesis of Paracetamol o Diels Alder Reactions o Isolation of Natural Products o Isolation of Pigments form Plants Medicinal Chemistry Applications o Enzyme Activity o Beer's Law: Protein Concentration Determination o Pharmacological assays